WHAT IS CLAIMED IS:

1.   A compressed data processing method for reducing a picture updating frequency of a stream of picture data sets expressing respective compression-encoded pictures, said stream including picture data sets each containing prediction information expressing a compression-encoded picture as being predictively encoded with respect to a predetermined corresponding other one of said compression-encoded pictures as a reference picture, the method comprising steps of:

preparing beforehand a copy data set whose contents indicate a compression-encoded picture as being identical to said corresponding reference picture, and

processing said stream of picture data sets to insert said copy data set to replace said prediction information in each of periodically occurring ones of said predictively encoded compression-encoded pictures.

2.   The method according to claim 1, wherein said stream is an MPEG compressed video data stream in which each of said reference pictures is an I-picture or a P-picture and each of said predictively encoded pictures is a P-picture or a B-picture, each of said pictures for which prediction information is replaced is a B-

picture, and wherein said copy data set includes motion vector information indicating that an overall amount of picture motion of a B-picture with respect to a corresponding temporally preceding reference picture or

5   with respect to a corresponding temporally succeeding reference picture is zero and motion compensated prediction error information indicating that respective amounts of motion compensated prediction error for all macroblocks of said B-picture are zero, to thereby

10   specify all macroblocks of said B-picture as being skipped macroblocks.

3.   The method according to claim 1, wherein said stream is an MPEG compressed video data stream in which

15   each of said reference pictures is an I-picture or a P-picture and each of said predictively encoded pictures is a P-picture or a B-picture, each of said pictures for which prediction information is replaced is a P-picture, and wherein said copy data set includes motion

20   vector information indicating that an overall amount of picture motion of a P-picture with respect to a corresponding temporally preceding reference picture is zero and motion compensated prediction error information indicating that respective amounts of

25   motion compensated prediction error for all macroblocks

of said P-picture are zero to, thereby specify all
macroblocks of said P-picture as being skipped
macroblocks.

5   4.   The method according to claim 1, wherein said
compressed video data stream is an MPEG data stream in
which each of said reference pictures is an I-picture
or a P-picture and each of said predictively encoded
pictures is a P-picture or a B-picture, wherein a B-
10   picture copy data set and a P-picture copy data set are
respectively prepared beforehand, wherein said B-
picture copy data set includes motion vector
information indicating that an overall amount of motion
of a B-picture with respect to a corresponding
15   temporally preceding reference picture or with respect
to a corresponding temporally succeeding reference
picture is zero and prediction error information
indicating that respective amounts of motion
compensated prediction error for all macroblocks of
20   said B-picture are zero, to thereby specify all
macroblocks of said B-picture as being skipped
macroblocks, wherein said P-picture copy data set
includes motion vector information indicating that an
overall amount of motion of a P-picture with respect to
25   a corresponding temporally preceding reference picture

is zero and information indicating that respective

amounts of motion compensated prediction error for all

macroblocks of said P-picture are zero, to thereby

specify all macroblocks of said P-picture as being

5   skipped macroblocks, and wherein a first processing

mode or a second processing mode can be selectively

established such that in said first processing mode

each of the B-pictures of said MPEG compressed video

data stream is replaced by said B-picture copy data set

10   and in said second processing mode, each of said B-

pictures of said MPEG compressed video data stream is

replaced by said B-picture copy data set and each of

said P-pictures of said MPEG compressed video data

stream is replaced by said P-picture copy data set.

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5.   A compressed data processing method for

processing a selected part of an MPEG compressed video

data stream to produce successive overall picture

displacement in a predetermined direction for a final

20   displayed picture corresponding to said selected part,

said selected part being formed of a continuous

sequence of predictively encoded pictures, the method

comprising steps of:

preparing beforehand copy information which

25   specifies one specific predictive encoding direction

for a predictively encoded picture and contains

information indicating a specific non-zero magnitude of

a motion vector which applies to all macroblocks of

said predictively encoded picture, and a specific

5   direction of said motion vector, and information

indicating that each macroblock of said predictively

encoded picture has zero amount of motion compensated

prediction error; and

    processing each of said predictively encoded

10   pictures in said selected part of the MPEG data stream

to replace all motion vector information and motion

compensated prediction error information of said each

predictively encoded pictures with said copy

information.

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6.   The method according to claim 5, wherein said

selected part of the MPEG data stream contains a

plurality of I-pictures, and wherein said method

further comprises a step of processing each of

20   respective I-pictures which occur within said selected

part of the MPEG data stream to produce a specific

amount of displacement of a final displayed picture

corresponding to said I-picture, with said amount of

displacement being a continuation of successive amounts

25   of final displayed picture displacement which are

respectively produced as an effect of predictively
encoded pictures which precede said each I-picture
within a temporal sequence of the MPEG data stream.

5   7.   A compressed data processing method for
processing a selected part of an MPEG compressed video
data stream to produce successive overall picture
displacement in a predetermined direction for a final
displayed picture corresponding to said selected part,
10   said selected part being formed of a continuous
succession of B-pictures and P-pictures, the method
comprising steps of:
        preparing beforehand a P-picture copy data set
which includes motion vector information for specifying
15   a non-zero value of magnitude and a direction of a
motion vector expressing an overall amount and
direction of motion of a P-picture with respect to a
corresponding temporally preceding reference picture,
said copy data set further including motion compensated
20   prediction error information which specifies zero
amount of motion compensated prediction error for all
macroblocks constituting said P-picture;
        preparing beforehand a B-picture copy data set
which includes motion vector information for specifying
25   a non-zero value of magnitude and a direction of a

motion vector expressing an overall amount and
direction of motion of a B-picture with respect to a
corresponding temporally preceding reference picture,
said copy data set further including motion compensated
5   prediction error information which specifies zero
amount of motion compensated prediction error for all
macroblocks constituting said B-picture; and,

processing each of respective P-pictures in said
selected part of the MPEG data stream to replace all
10   motion vector information and motion compensated
prediction error information of said each P-picture
with said P-picture copy data set, and processing each
of respective B-pictures expressed in said selected
part of the MPEG data stream to replace all motion
15   vector information and motion compensated prediction
error information of said each B-picture with said B-
picture copy data set.

8.   The method according to claim 7, wherein said
20   selected part of the MPEG data stream contains a
plurality of I-pictures, and wherein said method
further comprises a step of processing each of
respective I-pictures which occur within said selected
part of the MPEG data stream to produce a specific
25   amount of displacement of a final displayed picture

corresponding to said I-picture, with said amount of displacement being a continuation of successive identical amounts of final displayed picture displacement which are respectively produced as an

5 effect of B-pictures and P-pictures which precede said each I-picture within a temporal sequence of the MPEG data stream.

9. A compressed data processing apparatus for

10 reducing a picture updating frequency of a stream of picture data sets expressing respective compression-encoded pictures, said stream including picture data sets each containing prediction information expressing a compression-encoded picture as being predictively

15 encoded with respect to a predetermined corresponding other one of said compression-encoded pictures as a reference picture, the apparatus comprising:

stream buffer memory means for receiving, temporarily storing, and outputting successive portions

20 of said compressed video data stream,

copy data memory means having stored therein a copy data set containing information indicating that a predictively encoded picture is identical to a corresponding reference picture,

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picture data detection means for detecting a condition in which a set of data expressing a predictively encoded picture is currently held in said stream buffer memory means, and

5   data changeover means responsive to said detection for replacing all prediction information of said predictively encoded picture with said copy data set.

10. A compressed data processing apparatus for

10   reducing a picture updating frequency of an MPEG compressed video data stream, comprising

stream buffer memory means for receiving, temporarily storing, and outputting successive portions of said compressed video data stream,

15   copy data memory means having stored therein a B-picture copy data set containing information indicating that an overall amount of motion of an MPEG B-picture with respect to a preceding reference picture or with respect to a succeeding reference picture, expressed by

20 a motion vector, is zero and information indicating that respective amounts of motion compensated prediction error for all macroblocks of said B-picture are zero,

picture data detection means for detecting a

25   condition in which a set of data expressing a B-picture

of said compressed video data stream is currently held

in said stream buffer memory means, and

data changeover means responsive to said detection

of B-picture data set being held in said stream buffer

5   memory means for replacing all motion vector

information and motion compensated prediction error

information of said B-picture data set with said B-

picture copy data set.

10   11.   A compressed data processing apparatus for

reducing a picture updating frequency of an MPEG

compressed video data stream, comprising

stream buffer memory means for receiving,

temporarily storing, and outputting successive portions

15   of said compressed video data stream,

copy data memory means having stored therein a P-

picture copy data set containing information indicating

that an overall amount of motion of an MPEG P-picture

with respect to a reference picture, expressed by a

20   motion vector, is zero and information indicating that

respective amounts of motion compensated prediction

error for all macroblocks of said P-picture are zero,

picture data detection means for detecting a

condition in which a set of data expressing a P-picture

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of said compressed video data stream is currently held

in said stream buffer memory means, and

data changeover means responsive to said detection

of a P-picture data set being held in said stream

5   buffer memory means for replacing all motion vector

information and motion compensated prediction error

information of said P-picture data set with said P-

picture copy data set.

10   12.   A compressed data processing apparatus for

reducing a picture updating frequency of an MPEG

compressed video data stream, comprising

stream buffer memory means for receiving,

temporarily storing, and outputting successive portions

15   of said compressed video data stream,

copy data memory means having stored therein a P-

picture copy data set containing information indicating

that an overall amount of motion of an MPEG P-picture

with respect to a temporally preceding reference

20   picture, expressed by a motion vector, is zero and

information indicating that respective amounts of

motion compensated prediction error for all macroblocks

of said P-picture are zero, and a B-picture copy data

set containing information indicating that an overall

25   amount of motion of an MPEG B-picture with respect to a

temporally preceding reference picture, expressed by a motion vector, is zero and information indicating that respective amounts of motion compensated prediction error for all macroblocks of said B-picture are zero,

5   picture data detection means for detecting a condition in which a set of data expressing a P-picture or in which a set of data expressing a B-picture of said compressed video data stream is currently held in said stream buffer memory means, and

10   data changeover means controllable for selectively operating in a first mode whereby said data changeover means is responsive to said detection of a B-picture data set being held in said stream buffer memory means for replacing all motion vector information and motion

15 compensated prediction error information of said B-picture data set with said B-picture copy data set and in a second mode whereby said data changeover means is responsive to said detection of a B-picture data set being held in said stream buffer memory means for

20 replacing all motion vector information and motion compensated prediction error information of said B-picture data set with said B-picture copy data set and is responsive to said detection of a P-picture data set being held in said stream buffer memory means for

25 replacing all motion vector information and motion

compensated prediction error information of said P-picture data set with said P-picture copy data set.

13. A compressed data processing apparatus for processing a selected part of an MPEG data stream to produce successive displacement in a predetermined direction for a final displayed picture corresponding to said selected part, the apparatus comprising:

stream buffer memory means for receiving, temporarily storing, and outputting successive portions of said compressed video data stream,

first memory means having stored therein a P-picture copy data set which includes motion vector information which specifies a non-zero magnitude and a direction for a motion vector expressing an overall amount and direction of motion of a P-picture with respect to a temporally preceding reference picture, said copy data set further including motion compensated prediction error information which specifies zero amount of motion compensated prediction error for all macroblocks constituting said P-picture;

second memory means having stored therein a B-picture copy data set which includes motion vector information which specifies a non-zero magnitude and a direction for a motion vector expressing an overall

amount and direction of motion of a B-picture with respect to a temporally preceding reference picture, said copy data set further including motion compensated prediction error information which specifies zero

5   amount of motion compensated prediction error for all macroblocks constituting said B-picture; and,

picture data detection means for detecting a condition in which a set of data expressing a P-picture or in which a set of data expressing a B-picture within

10   said selected part of the compressed video data stream is currently held in said stream buffer memory means, and

data changeover means responsive to said detection of a B-picture data set being held in said stream

15   buffer memory means for reading out said B-picture copy data set from said first memory means and responsive to said detection of a P-picture data set being held in said stream buffer memory means for reading out said P-picture copy data set from said second memory means and

20   replacing all motion vector information and motion compensated prediction error information of said P-picture data set with said P-picture copy data set.

14.   The apparatus according to claim 13, wherein said

25   selected part of the MPEG data stream contains a

plurality of I-pictures, and wherein said apparatus

further comprises means for processing each of

respective I-pictures which occur within said selected

part of the MPEG data stream to produce a specific

5   amount of displacement of a final displayed picture

corresponding to said I-picture, with said amount of

displacement being a continuation of successive amounts

of overall picture displacement which are respectively

produced as an effect of B-pictures and P-pictures

10   which precede said each I-picture within said selected

part of the MPEG data stream.

15.   A recording and playback system for compressed

data, comprising:

15   a recording medium;

recording means for generating a recording signal

to record on said recording medium a plurality of

program items expressed as respective streams of

compressed digital data, each of said streams formed of

20   successive picture data sets expressing respective

compression-encoded pictures, and including picture

data sets each containing prediction information

expressing a compression-encoded picture as being

predictively encoded with respect to a predetermined

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corresponding other one of said compression-encoded

pictures as a reference picture;

playback means for playback of selected ones of

said program items from said recording medium;

5   recording information means for acquiring

respective recording information relating to said

program items from said recording signal and for

holding said recording information;

means for designating one of said recorded program

10   items to be subjected to picture updating frequency

reduction processing;

program item specifying means for obtaining

recording information relating to said designated

program item from said recording information means, and

15   for controlling said playback means in accordance with

said recording information to read out the recorded

data of said program item from said recording medium as

a compressed playback data stream;

and a compressed data processing apparatus

20   coupled to receive said compressed playback data of a

designated program item and process said playback data

to obtain a processed MPEG video data stream, and

supply said processed MPEG video data stream to said

recording means to be recorded on said recording

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medium, said compressed data processing apparatus comprising

stream buffer memory means for receiving, temporarily storing, and outputting successive portions of said compressed video data stream,

copy data memory means having stored therein a copy data set containing information indicating that a predictively encoded picture is identical to a corresponding reference picture,

picture data detection means for detecting a condition in which a set of data expressing a predictively encoded picture is currently held in said stream buffer memory means, and

data changeover means responsive to said detection for replacing all prediction information of said predictively encoded picture with said copy data set.

16. The apparatus according to claim 15, wherein each of said streams of compressed digital data is an MPEG compressed video data stream, and wherein

said copy data memory means has stored therein a B-picture copy data set containing information indicating that an overall amount of motion of an MPEG B-picture with respect to a preceding reference picture or with respect to a succeeding reference picture,

expressed by a motion vector, is zero and information indicating that respective amounts of motion compensated prediction error for all macroblocks of said B-picture are zero,

5   said picture data detection means detects a condition in which a set of data expressing a B-picture of said compressed video data stream is currently held in said stream buffer memory means, and

      said data changeover means is responsive to said

10   detection of a B-picture data set being held in said stream buffer memory means for replacing all motion vector information and motion compensated prediction error information of said B-picture data set with said B-picture copy data set.

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17.   The apparatus according to claim 15, wherein each of said streams of encoded data is an MPEG compressed video data stream, and wherein

      said copy data memory means has stored therein a

20   P-picture copy data set containing motion vector information indicating that an overall amount of motion of an MPEG P-picture with respect to a corresponding temporally preceding reference picture is zero and information indicating that respective amounts of

25   motion compensated prediction error for all macroblocks

of said P-picture are zero, and a B-picture copy data
set containing motion vector information indicating
that an overall amount of motion of an MPEG B-picture
with respect to a corresponding temporally preceding

5. reference picture or with respect to a corresponding
temporally succeeding reference picture is zero and
information indicating that respective amounts of
motion compensated prediction error for all macroblocks
of said B-picture are zero,

10   said picture data detection means comprises means
for detecting a condition in which a set of data
expressing a P-picture or in which a set of data
expressing a B-picture of said compressed video data
stream is currently held in said stream buffer memory

15 means, and

        said data changeover means is controllable for
selectively operating in a first mode whereby said
data changeover means is responsive to said detection
of a B-picture data set being held in said stream

20 buffer memory means for replacing all motion vector
information and motion compensated prediction error
information of said B-picture data set with said B-
picture copy data set and in a second mode whereby said
data changeover means is responsive to said detection

25 of a B-picture data set being held in said stream

buffer memory means for replacing all motion vector
information and motion compensated prediction error
information of said B-picture data set with said B-
picture copy data set and is responsive to said

5   detection of a P-picture data set being held in said
stream buffer memory means for replacing all motion
vector information and motion compensated prediction
error information of said P-picture data set with said
P-picture copy data set.

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